www.wvara.org

October 2017

The Heterodyne

Newsletter of the West Valley Amateur Radio Association

October Meeting

Amateur Radio Direction Finding

By Bobby Barnett, K0XI

Wednesday, October 11
Meeting Starts at 7pm

Meeting Location:
American Red Cross,
Silicon Valley Chapter
2731 N. First Street at Plumeria Dr
(southwest corner) in San Jose

Map at www.wvara.org/meetings.html

WVARA Repeaters (W6PIY)		
Band	**Frequency**	**PL**
6 Meters	52.580- MHz	151.4 Hz
2 Meters	147.39+ MHz	151.4 Hz
1.25 Meters	223.96- MHz	156.7 Hz
0.70 Meter	441.35+ MHz	88.5 Hz
0.23 Meter	1286.2- MHz	100 Hz

Club Net

WVARA's club net is on the W6PIY repeaters each Tuesday at 8:30 pm. All repeaters are linked together during the net. The net script can be found at www.wvara.org/net.html .

Visitors Are Welcome!

President's Letter

FT8 Feeding Frenzy

With band conditions being kind of so so,I finally got around to trying the new FT8 mode and had a ball. After getting it set up with my radio and computer, in about 6 hours I made QSOs on 160, 80, 40, 30, 20, and 17 meters. I completed 71 QSOs, with 16 DXCCs. I had 16 US states confirmed with LOTW.

A bit of background: FT8 stands for "Franke-Taylor design, 8-FSK modulation" and was created by Joe Taylor, K1JT and Steve Franke, K9AN. It uses 15 second windows synchronized to UTC within ±1 second, and a 12.64 second transmit time. Each window transfers 75 bits with a 12-bit CRC so it has robust error checking. With such a short message, it is not really useful for rag chewing, but it excels at basic QSOs in bad band conditions.

It is four times faster than the even slower JT modes which use 1 minute sequences. If operating the slow JT modes are like watching paint dry, FT8 is like watching nail polish dry. You can complete a QSO as quickly as a minute and a half -- exchanging call signs, grid squares, and computer generated signal reports. The computer generated signal reports are useful for understanding band conditions and your equipment, unlike the 5NN you hear during contest and DX contacts.

WSJT-X[1] is the only computer program that currently supports FT8. It is available on Linux (x86 and Arm), Mac, and Windows Some of the decoding algorithms are quite CPU and memory intensive, so it requires a 1.5 GHz or faster CPU with 200 MB of available memory. Faster machines are better. Computer audio input and output devices must be configured for sample rate 48000 Hz, 16 bits.

The UI is quite pleasant. It decodes all the signals within the computer's audio passband and displays the results at the end of every receive window. It uses colors to highlight the CQ calls, separating the previously worked calls from the new DXCCs, from the calls not yet worked. It also uses color to highlight the messages containing your call, making split operation easier.

In addition, because of the very short time between the display of the received signals and the start of the next transmit window, WSJT-X can be set up to automatically respond to a CQ response and automatically sequence the messages in a QSO.

FT8 operation is quite power hungry. If I operate for any length of time at 100 watts, I notice my solar-charged batteries are getting low. I guess I need more panels on the roof. I can avoid the worst of this problem by operating my external power amplifier, which is powered from the mains, at 100 watts. Then the K3 draws less than 4 watts instead of 20. Of course, with the amplifier, I can use higher power. I have used up to 1000 watts to good effect.

Given the popularity of the mode, I am sure people will come up with a convention for making field day contacts, so we should be prepared next June. Another way the FT8 protocol could grow is having conventions for passing emergency messages. Being able to operate so far below the noise floor and in bad band conditions would be a useful tool in the emergency toolbox.

It should be noted that there are really two separate worlds on a single band. The world of the people who transmit during even windows and the ones that transmit during odd windows. There are a couple of things that are useful to remember because of these two worlds.

First, If you are transmitting every transmit window, for example calling CQ, then you will never see the activity in the other world. It could be some DXCC you really want.

The second is that when clearing a frequency for calling CQ, you really need to wait until you have decoded both worlds. Otherwise, you might be calling CQ in an even window and someone else is calling CQ on the same frequency in an odd window. In this situation, you will step on each other's responses.

To show how much fun I had, some of the highlights from over 300 logged QSOs during the first six days are:

- I was calling CQ on 15 meters and I got a response from Thailand which was confirmed through Logbook of the World.
- I managed to beat my way through the pileup and have a QSO with K1JT himself.
- I responded to a call from WB9JNZ, one of the net controls for the Elecraft SSB net. I added, "HI ERIC" to the exchange and got a "HI BILL" back.
- I made a contact with 3W3B in Viet Nam and the band dropped out at the end of the QSO. I got an email from him saying, "You're in the log."
- I have LotW confirmed QSOs with DXCCs on 160M, 80M, 40M, 30M, 20M, 17M, 15M, 12M and 10M. I keep trying for 6M, but no luck yet.

- I have LotW confirmed QSOs with 39 states and 20 DXCCs.

In conclusion, the bands are still open for FT8 contacts. Having an amplifier helps, but isn't absolutely necessary. You can still make contacts on frequencies as high as the 12 and 10 meter bands with 100 watts. (I haven't tried QRP yet.) These modes are a nice way to while away the days until the sun-spots return.

[1] For more information about WSJT-X and software see: http://physics.princeton.edu/pulsar/K1JT/

73 Bill AE6JV

October 11 Meeting

CQ CQ! It's time for another meeting. This Wednesday evening, in addition to the regular agenda of interesting items, we'll have a brief discussion over our outings schedule, as well as the pros and cons of:

- CQP
- Oceania on the coast
- ARDF
- ARRL VHF
- 7QP
- and whatever else comes to mind

In an attempt to continue bringing ideas out from within the club, our "guest speaker" Bobby Barnett (K0XI) will talk about Amateur Radio Direction Finding (ARDF), who does it, why, and how contests are organized. The evening will end with an assembly project where everyone will get to make an ARDF yagi for 2m (http://theleggios.net/wb2hol/projects/rdf/tape_bm.htm). There will be enough parts for about 10 antennas, so work in teams. It should take about 30 minutes, and the only homework I'll give is to solder the feedpoint and hairpin on at your leisure. See you there!

Meeting Location: Meeting Room 5 at the Silicon Valley Chapter of the American Red Cross, 2731 N. First Street at Plumeria Drive (southwest corner) in San Jose. Most of us come in through the side entrance on the southwest side of the building — look for our red WVARA sign on the side where they park all the Red Cross trucks. Cookies will be served, and of course visitors are welcome!

If you haven't been to the Red Cross, "talk-in" is usually available on the Association's repeaters. Best choice would be 2m/220.

See you there!
Bobby, K0XI

The Northern California DX Club wants to help you get on the air on the HF Bands

Registrations Are Now Being Taken for All Classes

- Class descriptions are now posted on the NCDXC web site for each class. You can register for as many classes as you wish.
- To access them go to ncdxc.org and click on the Elmer Project tab. At the bottom of the page describing the Project is a red **register button** taking you to our Registration Page.
- There you may enter your name and contact information, read a brief description of any class and choose those that you wish to take. Dates and times for the classes are also shown.
- Class descriptions are available to read without signing up for any classes.
- The instructors name and email address is available so that you may contact him or her.
- Classes begin on September 23 and are absolutely free.
- Addition information may be found in an article in the October 2017 issue of QST Magazine or by coming to our talk on Saturday, October 21 at 1 pm at Pacificon.
- Classes are arranged in three tracks.
- After a couple of fun, introductory classes on the joys and benefits of HF operation there are 6 Track 1 classes designed to help prepare the General class license exam.
- Track 2 covers basic HF operating and includes classes on equipment selection, station building and HF operating techniques.
- Track III covers more advanced topics such as advanced SSB, CW and digital mode operation, antennas, propagation and equipment specifications.
- Classes are taught using two methods
- Four classes are taught by the Elmer in his shack. The Elmer has no fixed program but will be ready to answer any questions you may have and walk you through a difficult topic. He can also demonstrate and let you try various facets of HF operation. The instructor will contact you, using your sign in information, to set up a mutually agreeable time for the class. These One on One classes carry on the ham radio Elmering tradition.
- The remaining 17 classes are taught using Power Point slides delivered by WebEx. No special software is required and WebEx works with Windows, Mac OS and Linux. When you sign up for a class you will receive a Welcome Message from the instructor containing simple instructions on how to log in to WebEx. You can see the slides and hear the instructor and he or she can hear you.
- When in a Power Point class please MUTE YOUR MICROPHONE to avoid background noise disturbing other participants.
- NCDXC members have invested many hundreds of hours putting the Elmering Project together. Our goal is to get you on the HF bands making QSOs. Our instructors have many years of experience in their topics. We will do our very best to make the classes fun and interesting. There are no dumb questions. We want you to succeed!
- Just go to ncdxc.org and click the Elmer Project tab to get started!

Microwave Update 2017 - Oct 26-29 - Registration is Open

On Line Registration is now open for both the conference and for hotel rooms. Sign up today!

To register, simply go to www.microwaveupdate.org and click on the **Registration** tab. Registration price includes two days of presentations, conference proceedings book and CD, two lunches, a banquet dinner and drawings for door prizes. We will also have vendor exhibits, a test lab, indoor and outdoor swap meets and a surplus tour.

We have a reserved block of 50 discounted hotel rooms at the conference hotel. Room price includes a breakfast buffet, WiFi and parking, and SJC (San Jose, CA) airport shuttle when available. For more info and to register for a room, please go to the **Hotel** tab. The deadline for discounts is Oct 12th, but the rooms may run out before then... it's first come, first served.

MUD 2017 is October 26-29 in Santa Clara, California

Microwave Update 2017 will be held on October 26-29, 2017 in Santa Clara, California (Silicon Valley / San Francisco Bay Area). The MUD conference is dedicated to microwave equipment design, construction, and operation. It is focused on, but not limited to, amateur radio on the microwave bands. Since 1985, this annual conference, targeted at microwave radio enthusiasts, generally has attendance of about 100 Amateur Radio Operators from around the world.

For more information on the conference, please check out www.microwaveupdate.org
or email questions to mud2017.info@gmail.com

Please forward this announcement to any other mail lists and clubs that you may belong to.

Call for Papers

The MUD 2017 program committee is now calling for papers and presentations on the technical and operational aspects of microwave amateur radio communications. Tell us about your latest project, design or operating adventures. The technical program will take place Friday and Saturday, October 27 and 28, 2017, in Santa Clara, California.

Please click on the **>> Call for Papers << link** at www.microwaveupdate.org (or the **Content** tab) to learn how to submit your paper and presentation. Surely you have something new and exciting to share this year! **Submissions are due in the first week of September, but please send a short**

email to mud2017.papers@gmail.com sooner with a proposal. Don't wait until the beginning of September to let us know what you're planning!

Presentations selected for the technical program may be given in person or by proxy. We encourage presenters to submit a companion paper for publication in the proceedings book. See the website for more info. Papers may be submitted even if there will not be a presentation, with the same publication deadlines. Short papers (1 or 2 pages) are welcome, in addition to full length. Survey papers that summarize current know-how and tutorials that help and encourage newcomers are also welcome.

Suggested topics include:

* Centimeter, millimeter, submillimeter and light wavelengths
* Antenna and feed design, simulation, construction, measurement, application
* Microwave building blocks (LNAs, PAs, LO chains, Mixers, Synthesizers, Filters, etc)
* Transverters (single and multiband)
* Software defined radios
* Fixed station, Rover and Beacon design, packaging and operation
* EME, Satellite and Earth station design and operation
* Operating techniques, software and other aids
* Weak signal propagation modes and enhancements
* Digital modes for weak signals or data communcations
* CAD tools (preferably free or low cost) for circuit, antenna, path and system simulation and design
* Homebrew designs with modern commercial components
* Construction techniques (SMT, wirebond, microstrip, waveguide, substrates, homebrew)
* Conversion of surplus microwave equipment
* Test equipment and techniques (low cost, modern or surplus)
* Or – suggest your own topic

Pacificon 2017
Friday Oct 20 - Sunday Oct 22

San Ramon Marriott
2600 Bishop Drive
San Ramon, CA 94583

www.pacificon.org

New Members

The following new members joined WVARA recently:

Jim Frizzell, KM6KEG

Michael Wheatley, KM6LHD

Yoon Ho Choi, KM6KJI

Steve Sergeant, KC6ZKT

Jean Higham Sergeant, KD6UME

Welcome!!!

WVARA Net Check-Ins (W6PIY)					
Tuesdays at 8:30 PM					
Call Sign	**Name**	**09/12/17**	**09/19/17**	**09/26/17**	**10/3/17**
Total		**17**	**16**	**12**	**16**
AB6XS	Kevin	X		X	X
AE6JV	Bill	X	X		X
AF6AE	Bill	X	X	X	
AG6YO	Kevin	X	X		X
K6EI	Jim		X		
KC6ZKT	Steve		X		
KD6VOR	Marv				X
KE6MT	Rex	X			
KF6EMB	Svend	X	X	X	X
KI6SLX	Peri	X	X		X
KJ6ZZI	Michael	X		X	X
KK6EBL	Klouse				X
KK6VF	Kevin	NET	NET	NET	NET
KM6FDD	Lloyd		X		
KM6JI	Yoon	X	X		X
N6FYR	Matt	X	X	X	X
N9CU	Andy	X		X	X
NU6P	John		X		
W6ESL	Tom			X	
W6IA	Mark	X	X	X	X
W6PK	Phil	X	X		
W9KKN	Bill	X		X	X
WB6KHP	Dave	X	X	X	X
WC6YJ	Clay	X		X	X
WR3K	Greg		X		

Treasurer's Report

Financial Reports through Sept. are attached. Let me know if you have questions. Things continue to be slow, although the dues next year have begun to trickle in. Speaking of which, dues for 2018 are due now. I've already begun crediting dues towards next year. You can pay on the web site (wvara.org) or at the meeting. If you haven't checked out the new web site, you should. It's quite an improvement.

We have also begun receiving donations, which are always welcome. My personal thanks to our donors. It's nice to not have to worry about paying bills.

Peri Frantz, KI6SLX
WVARA Treasurer
treasurer@wvara.org

WVARA

as of
9/30/17

Statement of Activity

January through Sept 2017

	Q1	Q2	Q3		
	Jan - Mar '17	Apr - Jun '17	Jul &Aug '17	Sept '17	TOTAL
Income					
4200 — Misc. Income	10.11	30.12	0.08	0.04	**40.35**
4800 — Donations	133.00	154.00	0.00	15.00	**302.00**
4100 — Program Income					
4150 — Flea Market Reciepts	0.00	0.00	3,764.08	0.00	**3,764.08**
4110 — Membership Dues					
4114 — Fam. Repeater ($18)	72.00	18.00	0.00	18.00	**108.00**
4113 — Fam. Assn. ($20)	100.00	20.00	0.00	20.00	**140.00**
4112 — Indiv. Repeater (12)	192.00	108.00	0.00	12.00	**312.00**
4111 — Indiv. Assn. ($15)	375.00	135.00	0.00	15.00	**525.00**
Total 4110 — Membership Dues	739.00	281.00	0.00	65.00	**1,085.00**
Total 4100 — Program Income	739.00	281.00	3,764.08	65.00	**4,849.08**
Total Income	882.11	465.12	3,764.08	80.04	**5,191.35**
Expense					
5300 — Flea Market Expenses	2,400.00	0.00	239.08	0.00	**2,639.08**
5500 — Program Expenses					
6000 — Repeater Expenses					
6100 — Repeater Maintenan	81.07	0.00	0.00	0.00	**81.07**
Total 6000 — Repeater Expenses	81.07	0.00	0.00	0.00	**81.07**
Total 5500 — Program Expenses	81.07	0.00	0.00	0.00	**81.07**
5200 — Membership Expenses					
5240 — Summer Picnic	0.00	0.00	0.00	0.00	**0.00**
5210 — Badges	40.00	96.00	0.00	0.00	**136.00**
Total 5200 — Membership Expenses	40.00	96.00	0.00	0.00	**136.00**
5100 — Administrative Expenses					
5150 – PO Box Rental				76.00	**76.00**
5160 — Officer Awards	0.00	0.00	0.00	0.00	**0.00**
5190 — Misc. Expense	0.00	10.00	0.00	0.00	**10.00**
5140 — Web Hosting Expense	59.40	0.00	0.00	0.00	**59.40**
5110 — Finance Fees Paid	21.16	3.56	0.00	2.92	**27.64**
Total 5100 — Administrative Expenses	80.56	13.56	0.00	78.92	**173.04**
Total Expense	2,601.63	109.56	239.08	78.92	**3,029.19**
Net Income	(1,719.52)	355.56	3,525.00	1.12	**2,162.16**

WVARA
Statement of Position 10/05/17
As of September 30, 2017

	Sep 30, '17
ASSETS	
Current Assets	
Checking/Savings	
1000 — Financial Accounts	
1900 — Cash	
1910 — Petty Cash	140.23
Total 1900 — Cash	140.23
1200 — Savings; BotW	4,495.30
1300 — Paypal	2,255.04
1100 — Checking; BotW	5,017.54
Total 1000 — Financial Accounts	11,908.11
Total Checking/Savings	11,908.11
Total Current Assets	11,908.11
TOTAL ASSETS	11,908.11
LIABILITIES & EQUITY	
Equity	
3300 — Unrestricted Net Assets	
3320 — Repeater Balance	2,593.70
3900 — Retained Earnings	2,077.28
3310 — Associaton Balance	7,237.13
Total 3300 — Unrestricted Net Assets	11,908.11
Total Equity	11,908.11
TOTAL LIABILITIES & EQUITY	11,908.11

Elections Coming Up

Elections for West Valley Amateur Radio Association officers and directors are coming up at the November meeting. We are soliciting nominations for:

- President
- Vice President
- Secretary
- Treasurer
- Board members (3 to be elected)

Please let any officer of board member know if you are interested in running for a position, or have a nomination for someone else. Please make sure that anyone you nominate is willing to serve.

73 Bill AE6JV, WVARA President

2017 West Valley Amateur Radio Association Board

President: Bill Frantz, AE6JV
Vice President: Bobby Barnett, K0XI
Secretary: Jon Kelley, K6WV
Treasurer: Peri Frantz, KI6SLX
Directors:
John Glass, NU6P, 2016-2017
Bill Fehring, W9KKN, 2016-2017
Dave Schultheis, WB6KHP, 2016-2017
Jim Peterson, K6EI, 2017-2018
Svend Jensen, KF6EMB, 2017-2018
Kevin Smith, KK6VF, 2017-2018

The Heterodyne is published monthly by the West Valley Amateur Radio Association and sent to all club members via the web. Please obtain permission from the author to re-publish any article in this publication.

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Scott Emery, AD6RY
Jim Peterson, K6EI
Jon Kelley, K6WV
Phil Verinsky, W6PK

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